

# O<sub>2</sub> INSTALLATION KIT

## INSTALLATION INSTRUCTIONS

### FOR WIDEBAND O<sub>2</sub> SENSOR ADAPTER

Two adapter blocks are included in each kit. This allows you to monitor/tune both cylinders at the same time. The pressure in the exhaust system pushes the exhaust gas through the adapter and across the Wideband sensor. **No pump is required.**

If your tuning system only allows a single Wideband sensor, we recommend using a second computer with a Wideband sensor input to monitor the AFR in the opposite cylinder. Dynojet's Wideband Commander can be used for a second AFR, also Power Commander V allows engine data monitoring. Daytona Twin Tec's Wego/Twin Scan has 2 Wideband sensors and engine data monitoring/data logging capability.

For Dyno tuning, Install both O<sub>2</sub> Adapter blocks, and use these systems to monitor the engine and opposite cylinder.

**TIP** – When using a Power Commander, tune in Basic Mode (both cylinders) and tune off the front cylinder. Then swap the O<sub>2</sub> sensors, put the Power Commander into Advanced Mode, then re-tune the rear cylinder only.

For non-Dyno application, install both O<sub>2</sub> Adapter blocks, and the Wego/Twin Scan using both Wideband sensors. Turn on Data Logging, and send the bike out for a ride. When the bike returns, download the Data Logger.

We have found the best location for the sensor is approximately 4"-6" from the exhaust port. Unless the exhaust system is very short, this location should give you fast, accurate sensing with no reversion air dilution. If the exhaust system is extremely short, you may get a false lean reading at low RPM.

## HARLEY DAVIDSON

**Front Cylinder** – Install O<sub>2</sub> Adapter block a few inches downstream of the first bend near the head.

**Be careful, there is usually a heat shield clamp there.**

Make sure you leave clearance for the clamp and the bracket spot welded to the heat shield.

**Rear Cylinder** – The location for the sensor depends on the type of exhaust system.

On a single right side exhaust (Softail, Dyna, and Sportster), or 2-into-1 header (Thunderheader, ProPipe), locate the rear cylinder O<sub>2</sub> Adapter block similar to the front cylinder.

On a "True Dual" exhaust, locate the O<sub>2</sub> Adapter block on the "U" bend with the Wideband sensor horizontal and wires on the right side of the bike.

On 2008 and earlier Harley Davidson touring motorcycles, install the O<sub>2</sub> Adapter block on the rear cylinder "Y" pipe cross-over just **below** the "Y" connection. At this location, at low RPM (below 2000-2500 RPM), there will be some air sucked up through the left side muffler, giving a false lean AFR reading. The left side pipe has little to no effect on the power at this RPM range. To tune the rear cylinder's low RPM, close off the left muffler (we just use a shop rag to block the outlet of the muffler). You can determine RPM when the false lean ends by holding the engine at a steady RPM and unblocking the left side muffler. If the AFR goes up, then you still have some air being sucked up through the left muffler, increase RPM by 500, and test again. If the AFR remains steady, you are past the false lean point, and continue normal tuning.

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**Stock O<sub>2</sub> sensors** – Unless you are going to completely eliminate them, leave them in place and use the O<sub>2</sub> Adapter blocks for tuning. This will avoid throwing engine codes, and allow you to verify the stock sensors are operating correctly.

## INSTALLATION

**Step 1** – Remove heat shields and mark on the exhaust pipe the locations of the clamps and brackets that hold the heat shields in place.

**Step 2** – Measure down 4"-6" from the exhaust port. This is where the Rivet Nut will be installed in the exhaust pipe.

**Critical** – make sure this location is approximately 1" to either side of the heat shield clamp.

**Step 3** – Using a pilot drill (we recommend using a step drill), drill a 3/8" hole in the exhaust pipe. Then finish the hole with the 25/64" drill supplied, and remove burrs.

**DO NOT use a larger drill or oval the hole** –the Rivet Nut will come loose!

**Step 4** – Install Rivet Nut using the hydraulic installation tool. Follow instructions provided with the tool. Use reasonable force; you will feel when the Rivet Nut is full installed. The last pull on the handle will only go about half way.

**Step 5** – Attach the O<sub>2</sub> Adapter block to the Rivet Nut with the through drilled screw, copper washer, and a very small amount of anti seize on the threads. Make sure the hole in the screw is clean and not clogged. Only a small amount of torque is required to hold the block in place.

**Step 6** – Install Wideband sensor in block. Use a very small amount of anti seize on the threads. Tighten sensor just enough to seal.

**DO NOT over tighten!**

**Step 7** – Slip Silicon tubing over barb fitting. Tubing should be a minimum 4' to prevent air returning to sensor. Note – there is a jet in the barb fitting to control exhaust gas flow. We have found this works well 90% time, however, in some exhausts with very low back pressure, removing the jet helps.

**Step 8** – Route the O<sub>2</sub> leads and exhaust tubing away from exhaust, hot engine components, and rear wheel. Using zip-ties, or Velcro ties, secure O<sub>2</sub> leads and exhaust tubing.

**Caution – DO NOT kink or pinch exhaust tubing!**

**Step 9** – After tuning is complete, remove Wideband sensor and adapter block. Install stainless steel button head screw WITH copper washer and a small amount of anti seize. Reinstall heat shields.